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**Build and Demonstrate a Training Program  
that Integrates Human Dimension to  
Optimize Human Performance**

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**December 2016**

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### **Abstract**

In an effort to enhance Soldier and team performance, the FY16 Army Study Program awarded the Army's Maneuver Center of Excellence and The MITRE Corporation funds to conduct a study to develop Soldier/team performance-focused training support packages for operational and institutional training. This report summarizes the study team's process, products, and recommendations for augmenting an existing operational training program and institutional program of instruction with Soldier/team performance skills. Additionally, the report describes Soldier and trainer skills and attitudes as they relate to Soldier/team performance training to aid the Army in understanding the tasks and preparation required for Soldiers, trainers, and instructors and specifically to address Soldier/team performance training and instruction objectives. Finally, the study presents the design for an event in which the Army could test a Soldier/team performance-augmented unit training program and an institutional program of instruction for effectiveness in integrating cognitive and social communication skills into warrior skills training.

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### **Executive Summary**

For the past several years, the Army has conducted studies to develop a comprehensive human dimension (HD) strategy centered on improving Soldier/team performance (S/TP) to increase optimization and to deliver more effective training and learning programs. These studies are creating training methodologies, such as the Squad Overmatch study's integrated training approach, that have proven effective in enhancing the cognitive, physical, and social performance of all Soldiers, preparing them for complex environments. This report summarizes the work performed in 2016 to develop the training support packages for operational training. It also describes the institution and the work required to integrate validated HD training methodologies into existing training programs.

*Define a strategy and feasibility of developing exportable packages of human dimension-augmented unit training and institutional programs.*

This report presents a complete, detailed, exportable package that integrates Soldier/team performance-augmented training products, materials, and information necessary to support operational force training. Also included are educational products and materials necessary to teach S/TP-enhanced lessons in the institution. The study team developed these training support packages in accordance with Army Training and Doctrine Command (TRADOC) pamphlets that contain "how-to" guidance for creating unit training and institutional learning products for use by the operational force and Army training and education proponents. The feasibility and effectiveness of these training support packages were demonstrated at Fort Benning in June 2016, where they were used to plan, prepare, and execute an evaluation event comprising HD-focused training and education.

*Understand the skills and attitudes of Soldiers and trainers towards human dimension training so that training content and execution can be optimized for enhanced training effectiveness.*

Drawing on human performance metrics developed and collected during the aforementioned evaluation event, the Squad Overmatch team trained a small sample of Soldiers and trainers on HD skills such as situational awareness, resilience, tactical combat casualty care, and teamwork. Additional measures of cognition and surveys enabled the study team to understand the extent of knowledge transfer and comprehension that occurred and the rate at which Soldiers learned. Surveys of reactions and demographics provided feedback on Soldiers' and trainers' attitudes toward training that includes Soldier/team performance, and whether trainers considered such training and education beneficial. This information helps determine effective ways to deliver the instruction and training. The measures themselves provide a systematic mechanism for obtaining consistent data that can be analyzed and used to inform future training. Significantly, in 2016, by using these measures, the study team could demonstrate that Soldiers can be effectively trained in S/TP skills using an integrated crawl-walk-run methodology that encompasses instruction, simulation-based team training, and live team training exercises [1].

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# 1 Problem Statement

The Army's Squad Overmatch study has spent three years studying and demonstrating the value of the integrated training approach (ITA) through research, analysis, integration of emerging concepts, and technology injection. The Army performed a demonstration and a pilot study of a condensed version of the training capability, and identified the components needed for integrated training and a rough order of magnitude cost to implement them. Subjective assessment by experts and Soldiers verified the value of this approach. Although previous documentation referred to "human dimension" or "HD", the current focus is on Soldier and teamwork skills. For this reason, in this document, the term human dimension or HD will be used in reference to historical documentation or previous research, while the term Soldier/Team Performance or S/TP will be used for all discussions of current or future research.

Most recently, the studies have defined the next challenge as identifying the training and education modifications needed to effectively incorporate the ITA into existing training and education programs. This year's study, building on previous Squad Overmatch studies, has continued research and analysis to address the following questions:

1. Will the training methods proposed by the Squad Overmatch study engage Soldiers and teach Soldier/Team Performance (S/TP) skills well enough for Soldiers to apply the techniques in the field as if they were second nature?
2. What strategy would ensure that trainers receive adequate preparation to effectively train and teach S/TP skills?
3. Do the delivery methods and technologies proposed by the Squad Overmatch study effectively support the Army's S/TP strategy?
4. Can the Army feasibly augment existing unit training and institutional-based instruction with S/TP elements, in the sense that the costs are not prohibitive and the modifications do not require significant additional training time?

The studies seek to enhance training effectiveness through an integrated Soldier/team performance (S/TP) training approach. This year, the study team developed two training support packages (TSPs), one for the warfighters and one for the institution, that demonstrate how to accomplish this. Recent experimentation and evaluation using these TSPs have generated valuable data for the ongoing investigation to address the above questions. This report presents the results.

## 1.1 Official Army Supporting Documents

U.S. Army Training and Doctrine Command (TRADOC) Pamphlet (TP) 525-3-1, *The Army Operating Concept* [2], states that Army leaders must develop new innovative leaders and optimize human performance to win in a complex environment. According to the "Army Vision – Force 2025" white paper [3], the HD is key to mitigating risk and equipping the future Soldier with innovative capabilities. TP 525-3-7, *U.S. Army Concept for the Human Dimension in Full Spectrum Operations, 2015–2024* [4] outlines the framework for developing Soldiers' cognitive, physical, and social abilities. It further emphasizes that the squad will remain the foundation and cornerstone of the Army. To win in a complex environment, small tactical units and leaders must

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have improved situational awareness, judgment, and emotional maturity to determine if, when, and how the application of lethal force would best support the mission. Additionally, the Army must find a balance that optimizes performance and minimizes adverse health effects on Soldiers, such as symptoms associated with post-traumatic stress (PTS).

Leveraging the framework in the *Concept for the Human Dimension* [4], the Army published *The Army Human Dimension Strategy 2015* [5], which establishes methods to optimize human performance in every Soldier. The first line of effort (strategic objective) focuses on increasing the capability and capacity for cognitive performance of every Soldier in the force. This objective requires that the Army develop innovative learning programs that improve decision making and other cognitive abilities through individual and collective learning. The second focuses on developing and conducting training in complex environments to build cohesive teams that thrive in ambiguity and chaos. This entails accelerated training through improved training capabilities, including synthetic training, that replicate the complexity of the operating environment.

The guidelines defined by Army leadership present challenges to training and education. In response, FM 6-22, *Leader Development* [6], ATP 6-22.6, *Army Team Building* [7], and FM 7-0 *Train to Win in a Complex World* [8] contain the doctrinal framework covering methods for leaders to develop other leaders, improve their organizations, build teams, and advance their own skills. Within this framework, effective education and training implementations will contribute to meeting Army Warfighting Challenges (AWfCs) 8 (Enhance Training), 9 (Improve Soldier, Leader, and Team Performance), and 10 (Develop Agile and Adaptive Leaders). They will also help the Army to meet the learning requirements of other AWfCs; for example, in AWfC 15, Conduct Combined Arms Maneuver [9] Learning Demand 15.1 asks “What training strategies (LVC-G [Live, Virtual, Constructive, and Gaming]) and scenarios will best support proficiency in combined arms maneuver in future operations?” The application and integration of human performance enhancement (HPE) skills represent practical and powerful methods for beginning to meet the demands of these instructions from Army leadership.

TRADOC provides “how-to” guidance for developing and maintaining unit training and institutional learning products. Specifically, TPs 350-70-1 (*Training Development in Support of the Operational Domain*) [10] and 350-70-14 (*Training and Education Development in Support of the Institutional Domain*) [11] specify how to analyze, design, and develop unit training products and courses and lessons, respectively. These TPs contain additional direction for developing warfighter training support packages (WTSPs) and individual training support packages (ITSPs). The study team used these TPs in developing two key products described later in this report: the WTSP and ITSP for a S/TP-augmented unit training program and a S/TP-augmented program of instruction (POI).

## **1.2 Human Dimension Definition**

As discussed in the Section 1 Problem Statement, the term human dimension or HD will be used in reference to historical documentation or previous research, while the term Soldier/Team Performance or S/TP will be used for all discussions of current or future research.

The Human Dimension concept as detailed in Army TP 525-3-7 identifies the Human Dimension as the cognitive, physical, and social components of Soldiers, Army Civilians, leaders, and organizations which converge on three primary outcomes for S/TP training: optimized job

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performance, optimized holistic health and fitness, and maximized Army professionals. Implementation of successful S/TP training will require a greater investment in the human and behavioral sciences such as medicine, psychology, economics, sociology, anthropology, and political science. TP 525-3-7 lays out each of these components with a definition and a discussion of how these components fit into the overall Army strategy. The document discusses each component as follows:

- Cognitive: The cognitive component is defined in TP 525-3-7 as the “mental activity pertaining to the act or processes of perception, memory, judgment, and reasoning.” This component ties to the need for learning programs within the Army which improve critical thinking skills, technological savvy, and quick learning through a learner-focused approach which focuses on “technologies and methods to accelerate learning, experience, emotional maturity, and judgment across training domains.”
- Physical: Although the challenges and effective implementation of physical training have a long history in the Army, improvements in training for adaptability and resilience are critical to improving S/TP. Holistic health and fitness, which incorporates both traditional physical fitness (such as those measured by the APFT) and an understanding of the importance of nutrition, psychological health, and sports medicine to the overall fitness level of Soldiers.
- Social: The social component focuses on the ways in which Army personnel interact with and are influenced by others’ beliefs, behaviors, feelings, and interpersonal interactions. This component includes essential team and trust building elements (internal to Army units) as well as teaching personnel to develop and maintain “a richly diverse and positive social network,” both of which assist in developing resiliency and dealing with stressful situations. In addition to these elements, the social component also includes the need for Soldiers and civilians who are “adept at understanding the variables of political, military, economic, social, information, infrastructure, physical environment, and time (PMESII-PT).”

For the trainers and other respondents in the FY16 interviews, the Soldier/Team Performance was not as precisely defined. However, almost all respondents tied an improvement in Soldier/Team Performance skills to improvements in overall performance and the need to incorporate S/TP training into current training systems. The most common responses included discussions of thinking and cognitive skills, with less specific discussion on the holistic fitness or social elements of S/TP training. S/TP skills were seen as distinct from many other Soldier skills, however, such as the technological or mechanical elements of a weapon or vehicle.

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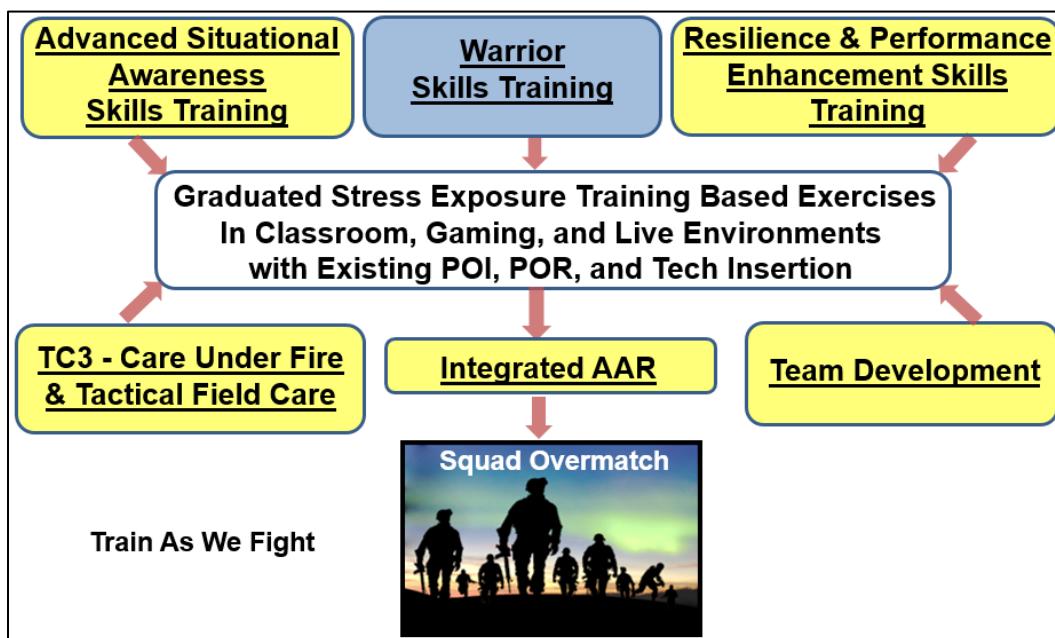
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# 2 Augmenting Operational Training Programs and Institutional Programs of Instruction

This section describes the steps for augmenting an existing operational training program and an institutional POI with S/TP skills. Section 2.1 presents background for the description by summarizing the components of the Squad Overmatch study ITA that are foundational to S/TP training.

## 2.1 Integrated Training Approach: Foundation of Soldier/Team Performance Training

The ITA evolved from a squad training concept developed in the FY13 Squad Overmatch study and demonstrated in the FY14 and FY15 studies. The ITA represents a combination of education and training methodologies and multiple instructional areas. Squad Overmatch integrates resilience, situational awareness, tactical combat casualty care (TC3), and teamwork skills (HPE) training into existing warrior skills training programs across a Soldier's career. To accomplish this, the ITA uses an instructional strategy that includes an existing POI, instructor observation through iterative classroom and skill development practice, scenarios executed in virtual and live programs of record (PORs), and an integrated after action review (AAR). The ITA also guides the Army on augmenting existing live training devices with technologies to simulate realistic combat stressors. Figure 1 depicts a conceptual view of the ITA.



**Figure 1. Integrated Training Approach**

As the central framework, the ITA instructional strategy uses stress exposure training (SET) methodologies to enable Soldiers to develop situational awareness and resilience, and performance enhancement (RPE) skills alongside warrior skills. SET is a three-phase training

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program encompassing information, skills training, and practice with the goal of helping Soldiers learn how to cope and perform while exposed to combat stressors.

The first phase of SET is preparatory. It provides basic knowledge about situational awareness, resilience, performance, and the effects of stress. Delivery modes include classroom instruction, discussions, videos, and instructional simulations that explain concepts and develop lexicons.

The second phase focuses on skills acquisition: learning skills and developing proficiency in situational awareness, individual and team performance, decision making, and stress coping. Soldiers can build these skills in simulation and virtual environments and also practice them in classroom or other training venues; for example, relaxation and stress management techniques, such as deliberate breathing, can be practiced anywhere.

The third phase of SET involves a practical application of skills in a setting that simulates or reproduces stressors. Soldiers practice the skills under gradually increasingly stressful conditions with performance feedback given by the instructor or other trainees. Delivery modes typically include simulated (gaming) and/or real scenarios in live training PORs or elsewhere (e.g., search and clear techniques can be practiced in almost any room).

As mentioned above, stress exposure training forms the framework of the ITA. The subsections below describe the ITA components that represent the basis of the approach:

- Foundational Education in HPE-enhanced POIs
- Stress-Based Scenarios
- Training in Technology-enhanced POR
- Learning Reinforced through integrated AARs

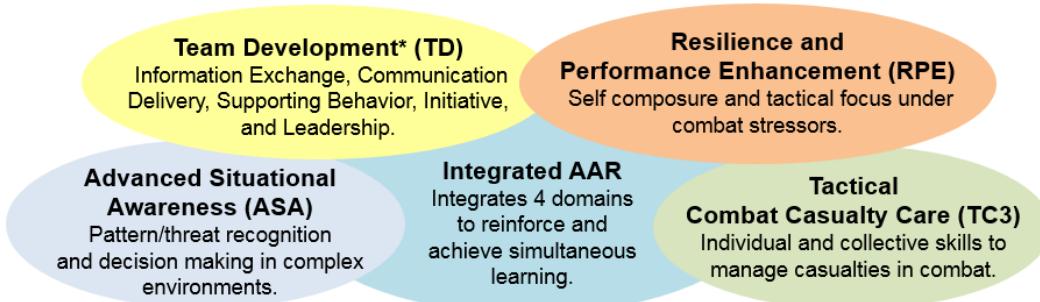
### **2.1.1 Foundational Education in Soldier/Team Performance-enhanced POIs**

Training begins with understanding the purpose and objectives of the training and showing how that training develops relevant and applicable skills. Soldiers must understand how HPE skills – advanced situational awareness (ASA), TC3, RPE, and teamwork – relate to required tasks and how mastery of these skills contributes directly to performance and growth. In the FY14 and FY15 demonstrations, the Squad Overmatch study collected feedback and data from squads on how application of HPE skills promotes better performance by increasing awareness and inculcating techniques for managing stress.

The ITA delivers foundation training in a classroom with mixed media, covering the HPE skills and familiarization with training technologies planned for use in gaming and during live training days (see Figure 2). Each content area leverages existing instructional programs and was compressed into an instructional package supplemented with compelling videos and hands-on exercises. Figure 2 and the subsections below present an overview of the classroom-based modules that comprise the ITA foundation training.

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**Figure 2. Integrated Training Approach Classroom Modules**

### 2.1.2 Stress-Based Scenarios

Scenarios play a critical role in developing cognitive skills in both individual Soldiers and squads. They are specifically designed to support training objectives and give Soldiers opportunities to develop and practice learned HPE skills. They provide context, usually with an intelligence summary, that includes information on high-value targets and other individuals (e.g., capabilities, vulnerabilities, habitual areas). For this study, the scenarios also contain storylines (e.g., narratives) whose events trace to requirements for exercising HPE skills.

In FY14 and FY15, the study team coordinated with the Walter Reed Army Institute of Research (WRAIR) to incorporate the most frequent stressors observed in recent combat (as reported by Soldiers during exit interviews) into scenarios in order to expose participants to realistic decision-making challenges. The scenarios allowed the team to assess Soldier performance in realistic situations. By practicing with such scenarios in virtual and live environments, Soldiers develop experience that they can draw upon when facing novel situations. The findings from the demonstrations suggested that scenarios should be executed within a relatively short period of time, giving opportunities for pause, review, reflection, and feedback.

### 2.1.3 Learning Reinforced Through Integrated After Action Reviews

The previous Squad Overmatch studies incorporated the learning objectives of the cognitive HPE skills into AARs to encourage Soldiers to reflect on how they used or could have used those skills during their training experience. The integrated AAR aids in team self-correction and mistake detection based on the results of a squad's training event (see Figure 3). Additionally, it uses this team self-correction method to facilitate squad initiative and ownership of AAR execution. The integrated AAR focuses on squad members engaging in individual reflection and team discussion to diagnose tactical and mental mistakes and set specific, measurable, realistic goals for improvement. All Squad Overmatch studies reinforce the use of an integrated AAR as an effective appraisal of HPE performance and the HPE learning methodology in gaming and live training.

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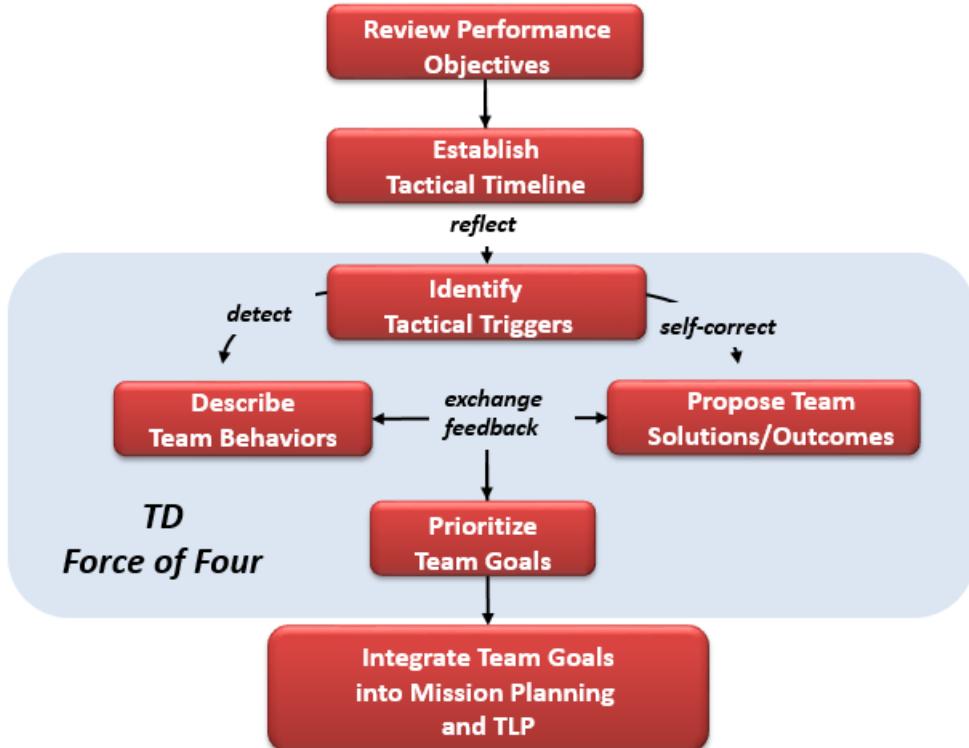


Figure 3. Integrated After Action Review Process

### 2.1.4 Training Using Technology-enhanced Programs of Record

The Squad Overmatch studies have sought to leverage existing training aids, devices, simulators, and simulations (TADSS) to create a more realistic operating environment. The FY14 and FY15 study team used gaming (Games for Training Virtual Battlespace 3 [VBS3]), immersive (Dismounted Soldier Training System [DSTS]), and live training PORs (Combined Arms Collective Training Facility [CACTF] and Military Operations on Urban Terrain (MOUT) sites) to provide training environments for development and practical application of individual skills. These PORs lack some capabilities necessary to train HPE. For example, the live sites alone do not provide the atmospherics that may be typical of a small rural village; they require props and role players to create a realistic setting. Training with live role players, while effective in terms of realism, can raise problems associated with, for example, the cost, experience, and repeatability of using live actors. The study team canvassed commercial, academic, and research institutions for a possible surrogate solution and introduced wall-based avatars that can shoot, behave, and respond in a natural manner when questioned or injured. The team evaluated technologies with respect to their ability to provide situational awareness cues and possibly (scenario dependent) behave in a manner that would require trainees to draw on their resilience skills (e.g., to have a dialogue with an agitated detainee).

Previously, the study teams employed scent generators, sniper fire effects, simulated improvised explosive devices (IEDs) and booby traps, and casualty effects (entry and exit wounds, blood/moulage) (see Figure 4). Various technology combinations in live training environments supply visual, auditory, olfactory, and haptic cues and stimuli that simulate combat situations

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with as much fidelity as possible. Ongoing research investigates how some of these technologies may be applied to gaming training environments as well. For gaming, the study team employed higher fidelity (than that natively provided by the POR) representations of the environment (urban, terrain), natural virtual humans/threats (visuals, behaviors), and tactical equipment (Individual First Aid Kit (IFAK) II) to enable training in situational awareness, stress management/self-regulation, decision making, and problem solving.

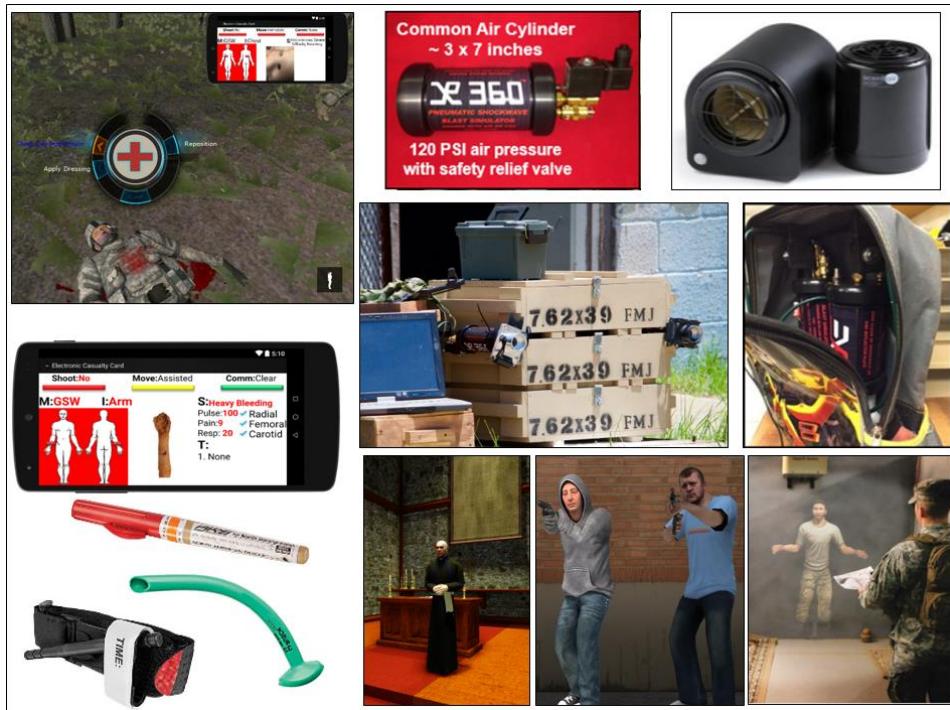


Figure 4. Technologies Augmenting Programs of Record

## 2.2 Methods for Augmenting Operational Training and an Institutional POI with Soldier/Team Performance Skills

Sections 2.2.1, 2.2.2, and 2.2.3 describe the process for analyzing and augmenting both institutional and operational training with S/TP skills using the ITA foundation described in Section 2.1. Sections 2.2.4 and 2.2.5 cover the product development aspects for enhancing an institutional POI and improving operational training, respectively.

The method outlined here is based on the process described in Army doctrine for developing training and education in support of the institutional domain [11] and operational training [10]. The major components are operational force drivers, job analysis, target audience, and product development.

### 2.2.1 Operational Force Drivers for S/TP Training

The Army must make modifications to the way it trains the force to maintain the decisive edge in its most valuable resource – its people. Adapting in the face of uncertainty demands a new approach. Material solutions alone will not provide the advantage over the complex array of rapidly adapting threats our operational forces face. Developing higher performing Soldiers demands a comprehensive S/TP strategy. The Army seeks to optimize the performance of every

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Soldier and team through innovation and investment in leader development, resilience, situational awareness, and TC3.<sup>1</sup>

### **2.2.2 Job Analysis**

The S/TP skills discussed above apply to all Soldiers across many jobs. The Squad Overmatch TC3 2016 Experiment provided evidence that S/TP training enhances team and individual performance [1] in infantry squads. In FY15, the Squad Overmatch team analyzed a sample of critical tasks for infantry brigades and POIs for members of those units (e.g., Infantry One Station Unit Training [11B OSUT]), to identify tasks that could most benefit from the S/TP skills [12]. Some of the identified tasks and lessons having the greatest potential generally involve a need for undivided attention (e.g., live fire training), observation of subtle details in an immersive operational environment (e.g., conducting urban operations, tactical questioning), or physically taxing or stressful situations (e.g., road marches, hand to hand combat).

The following collective tasks were selected (they provide opportunities for training S/TP skills):

- Conduct Tactical Movement
- Establish an Observation Post
- Conduct Coordination
- Conduct Action on Contact
- Enter and Clear a Building
- Treat Casualties
- Evacuate Casualties
- Conduct Negotiations

Primarily, these tasks include key leader engagements, small unit tactics in an urban or rural setting, first aid and medical tactics, casualty care and management, and communication among small units and higher headquarters.

In addition to addressing these collective tasks, the study team focused on developing the following skills that drive team performance:

- Leadership and Initiative
- Communication and Information Delivery
- Decision Making
- Focus and Attention
- Resilience
- Energy and Stress Management

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<sup>1</sup> This information was compiled from “Human Dimension Strategy,” “Enhanced Realistic Training White Paper,” and the “Human Dimension Concept White Paper.”

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Also, the study team created a series of five lesson plans associated with a series of individual supported, supporting, and trained tasks as well as knowledge and skills. The items associated with the lessons also demonstrate the types of skills that can be utilized or exploited to improve S/TP training. These tasks, skills, and knowledge collectively require communication among team members, observation of surrounding environment and people, attention control, energy management, and timely and tactical decision making in casualty response and care.

### **2.2.3 Target Audience**

Squad Overmatch targets primarily Soldiers at the platoon echelon and below.

### **2.2.4 Product Development and Augmentation for Operational Training**

The WTSP integrates the information and materials required for successful conduct of S/TP-augmented training events. It incorporates virtual training components, including the simulation files for gaming scenarios enhanced with S/TP-focused stimuli and behaviors. Section 3.1 of this report supplies a more detailed description and an external reference for the WTSP. The following paragraphs briefly describe which WTSP components have been S/TP augmented to enhance unit training realism and experiences in virtual and live environments and how this was done.

#### **2.2.4.1 Scenarios**

As noted earlier, scenarios should reinforce all foundation learning and training objectives. TRADOC should consider implementing the following design and development elements when augmenting virtual and live scenarios to train Soldiers in S/TP skills.

- Design experiences that contribute to meeting individual and collective training objectives and integrate S/TP tasks.
  - Incorporate key learning points emphasized in checks on learning (oral class-based quizzes, knowledge-based tests, previous AARs), and situational judgment tests.
  - Include tactical events/stimuli that trigger Soldier reactions and behaviors that require use and practice of S/TP skills (ASA, TC3, RPE, and team development [TD]).
  - Include tasks and events that have observable, measurable performance conditions.
- Develop realistic storylines, timelines, and tactical products appropriate for the training audience.
  - Provide tactical cues and other factors that are present in the operational environment and require individuals and teams to make decisions and solve problems.
  - Reinforce specific points in individual and team development using immersive and experiential learning.
  - Use Decisive Action Training Environment (DATE), developed by the U.S. Army TRADOC G-2.
  - Use/develop tactical products (e.g., Road to War, Operations Order, Intelligence Updates/Summaries, Mission Cards, Target Cards).
- Provide for reusability and variability, to include varying levels of stress.

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- Ensure that the techniques can be implemented across multiple training environments (e.g., Games for Training [GFT], Combined Arms Collective Training Facility [CACTF]).

### **2.2.4.2 Technologies**

Technologies offer numerous opportunities to enhance the crawl-walk-run training methodology and augment a training event with S/TP skills.

#### Classroom Technologies

- Video-game based and motion-picture type media can realistically depict situations, events, and cues that are present in the operational environment in order to evoke realistic responses and critical thinking from Soldiers.

#### Virtual Technologies

- High-resolution and accurate terrain and facility rendering can generate visually real landscapes and buildings to make the training experience more compelling.
- High-resolution texturing and articulated 3D models along with scripted behaviors and animations produce accurate human terrain representations and interactions between objects and avatars.
- Game engine scripting can create automatic and user-initiated events and effects (e.g., initiate suspicious or nervous behavior in an opposing force [OPFOR] character to support ASA training in human behavior profiling).
- Game engine scripting can also augment GFT model capabilities (e.g., develop and enhance models to provide tactical cues that are present in the operational environment).

#### Live Technologies

- Virtual (wall-projected) avatars in urban settings can represent OPFOR or innocent captives and initiate repeatable events that support measurable performance conditions.
- Virtual controllable characters can support interactive dialogs, tactical questioning, etc. and can provide high fidelity to facial expressions and body language for training Soldiers in ASA skills.
- Scent generation can increase realism in cultural and situation-based scenarios.
- TC3 representation technology (e.g., a digital Multiple Integrated Laser Engagement System [MILES] card device) can deliver real-time depictions of the injury and state (ability to move, shoot, communicate), thereby improving casualty assessment in the training environment.
- Safe (non-pyrotechnic) battlefield and weapon effects (sniper shot, booby trap, IED, suicide bomb) can produce realistic audible effects for kinetic events and serve as a highly repeatable, low-cost method for simulating the battlefield.
- Realistic casualty effects (entry/exit wound systems and moulage) can create greater realism in casualties, support training resilience, and improve performance under combat stressors.

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### **2.2.4.3 Execution**

The study team recommends that TRADOC take the following steps to enhance training effectiveness and deliver S/TP-augmented training to virtual and live environments.

- Insert leader-guided “coaching moments” at pre-designated points in the scenario (e.g., after a key leader engagement) that enable timely and specific behavior correction and reinforcement during training execution, rather than wait until the end.
- Teach live role players to understand the training objectives in order to create an experience and opportunities for the individual/unit to practice situational awareness (e.g., recognize human behavior patterns that convey honesty/deception) and improve resilience / focus (e.g., when encountering role players whose behaviors confuse the training audience).
- Integrate / coordinate with the home station Mission Training Center and VBS3 subject matter experts (SMEs) to develop and initiate software/gaming scripts intended to prompt HPE behaviors (i.e., administrative personnel trigger an IED event to create a casualty).

### **2.2.4.4 Integrated S/TP After Action Reviews**

In addition to conducting the doctrinal AAR focused on the tactical mission, TRADOC should integrate S/TP skills into training programs and discuss them during the integrated AAR, using a team-based approach. The integrated AAR is a repeatable, evidence-based process for improving team performance by reflecting on the need to change the four dimensions of teamwork: communications, information exchange, supporting behavior, and leadership. The following additional recommendations (generally aligned with the Army’s 8-Step Training Model) for planning, preparing, and executing the integrated AAR would help to enhance training effectiveness.

- Plan
  - Determine the focus of the AAR (e.g., tactical and specific human performance activities, such as ASA, resilience, and TC3).
  - Coordinate across unit leaders, Observer Controller/Trainers (OC/Ts), and SMEs to support the AAR event.
  - Schedule location, facility, and aids required to conduct the event (e.g., reserve facility that supports instrumentation/video playback).
- Prepare
  - Train AAR facilitators/leaders so they understand how to integrate and facilitate the AAR process with the S/TP focus areas.
- Execute
  - Ensure that all squad members participate, sharing insights and constructive feedback about squad performance and initiative, error detection, and self-correction.
  - Define achievable and measurable goals/areas for improvement.
  - Ensure that OC/Ts and SMEs call attention to and hold open discussions about opportunities where S/TP skills were or could have been used.

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### **2.2.5 Product Development and Augmentation for a POI**

This study focused on providing an individual TSP to insert or integrate into existing POIs using the analysis, design, development, implementation, and evaluation (ADDIE) process. Considerations include:

- Within a POI, identify the lessons, exercises, or scenarios that best suit the ITA instructional areas (see Figure 2).
- Analyze tasks within lessons to look for overlap with identified supported tasks (refer to lessons in ITSP).
- Analyze practical exercises (can these be improved with technology?).
- Describe examples of training aids, assessments, etc., to incorporate into existing POIs. (e.g., FY15 HD skills flip-book, FY16 TC3 assessment materials).
- Select lessons to modify:
  - Does the lesson cover the same or similar material?
    - e.g. OSUT:
      - “Every Soldier is a Sensor” for ASA
      - ‘First Aid: Buddy treatment’ for TC3
      - ‘Team Obstacle course’ for TD
  - Sources for comparison
    - SMEs
    - Field Manuals
    - Lesson plans in candidate POIs
    - Collective tasks listed in section 2.2.2.
  - Candidate POIs for this approach
    - OSUT targets newly enlisted Soldiers. Senior Leader Courses (SLCs) target new non-commissioned officers (NCOs) who become Squad Leaders.
    - Infantry Basic Officer Leader Courses (IBOLCs) target new officers, such as lieutenants who become platoon leaders who direct and continually collaborate with squads during operations.

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### **3 Training Support Packages (TSP)**

This section gives an overview of and supplies references to the WTSPs, ITSPs, and a gaming training package developed in this study.

#### **3.1 Warfighter Training Support Package**

This subsection describes the WTSP that is maintained as an addendum to this report.

##### **3.1.1 Overview**

The WTSP supports the Squad Overmatch crawl-walk-run methodology for classroom, virtual/gaming, and live exercises, respectively. It is an exportable package that integrates training products, materials, and information necessary to deliver operational force training. It provides a methodology for planning, executing, and assessing an HPE-augmented unit training exercise at home station (e.g., virtual and live situational training exercises [STXs] and field training exercises [FTXs]). The major sections of the WTSP are:

1. Event Identifier
2. Event Overview
3. Tactical Materials
4. Event Control Materials
5. Event Setup Materials
6. Communication Plan
7. Evaluation Plan
8. Administrative Materials
9. References
10. Glossary

Drawing on research and analysis, this study has selected multiple tasks among the following infantry collective tasks that would support use of the WTSP:

- Conduct Tactical Movement
- Establish an Observation Post
- Conduct Coordination
- Conduct Action on Contact
- Enter and Clear a Building
- Treat Casualties
- Evacuate Casualties
- Conduct Negotiations

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### 3.1.2 Development Methodology

The study team developed the WTSP in accordance with TP 350-70-1, which provides guidance for the development of combined arms training strategies (CATS), WTSPs, collective and individual tasks, and drills. The team utilized the instructional system design model of the ADDIE process for planning, organizing, and documenting all unit training products developed for this WTSP. As described in Section 2, the study team applied ADDIE by conducting mission needs analysis, job analysis, and target audience analysis as the primary processes for identifying the unit training products to be developed.

### 3.1.3 Lessons Learned and Recommendations

The TP 350-70-1 regulation for the WTSP format comprises a complete, detailed package of materials necessary to support operational force training. The WTSP contains the actual details for securing materials, training, and other resources required to support a CATS training event. The challenge, however, lies in packaging what will become a comprehensive and extensive amount of information in a clear, easy-to-navigate format. The regulation does not specify an interface for presenting the WTSP information to the user; the study team recommends that TRADOC create such a product. Because different types of stakeholders (unit commanders, training managers, technicians) may use the WTSP, it requires a user presentation layer that facilitates quick discovery of information. The scope of this WTSP development effort did not address this requirement; however, the study team did develop a hyperlinking approach for presenting information. This allowed the structure of the WTSP to comply with the regulation while adapting to any additional detail that might be required (e.g., various tactical artifact examples that could be tailored for training purposes). Still, a graphical user interface that enables presentation of information based on the type of user, is organized in a web-familiar design (tabs), and is indexable and searchable would be a useful addition to the WTSP (see Figure 5).



Figure 5. Example User Interface for WTSP

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### **3.2 Individual Training Support Package**

This section describes the ITSP and provides excerpts from and references to the ITSP maintained on the Training Development Capability (TDC) portal.

#### **3.2.1 Overview**

A cornerstone of the integrated training approach is a block of instruction to introduce or reinforce terms and concepts that Soldiers will use. This TSP distills existing POIs and other topics important to the S/TP that can be integrated into other institutional courses. Five lesson plans constitute the ITSP: Tactical Combat Casualty Care, Advanced Situational Awareness, Resilience and Performance Enhancement, Team Building, and AARs. The completed ITSP can be used for units conducting refresher training before virtual and/or live training events as well as for integration with POIs.

#### **3.2.2 Development Methodology**

The Squad Overmatch team built the ITSP online inside the TDC to ensure adherence to doctrinal standards for instructional design, and wrote it in accordance with TP 350-70-14 (*Training and Education Development in Support of the Institutional Domain*). Because each lesson represents a condensed version of a more comprehensive POI or concept, the team selected individual and collective skills within each area that can be used and measured during virtual and/or live events.

Once the basic curriculum was established, instructional designers and instructors collaborated to formulate instructional briefings and choose videos and other multimedia. These experts also developed a standardized set of student evaluations with multiple-choice questions covering the major lesson objectives. Instructors fielded the training during the Squad Overmatch TC3 Experiment at Fort Benning, GA, during June 2016, and then modified the instructional briefings based on early feedback from Soldiers.

Finally, the study team uploaded the instructional briefings, videos, and handouts onto TDC and wrote the ITSP. The team set a terminal learning objective for each lesson, and then mapped subordinate skills to each subject area. Based on the natural groupings of these subordinate skills, the team defined enabling learning objectives and assigned Learning Step Activities (LSAs) and Practical Exercises (PEs) to remaining subordinate skills. These were translated into TDC and edited to follow doctrine.

#### **3.2.3 Lessons Learned and Recommendations**

When writing formal lesson plans, developers must look at the product as a whole. Especially when using a tool such as TDC, it is easy to focus in on the finer details of how one LSA is written or what the instructor-student ratio should be, but developers should occasionally look over the lesson plan as a whole. While automated tools can help maintain format and structure, the writers must ensure that content remains consistent with the established template; otherwise objectives may not be parallel with other objectives, the length of instruction may not add up properly, or the ITSP may omit a vital piece of information. Therefore, developers should review a product outside of the tool and in the format in which it will be exported at least once a day, and the reviewer(s) should do the same.

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### **3.3 Gaming Training Package**

This section gives a brief description of and references to gaming documentation and software essential for planning, operating, and maintaining the virtual training capability.

#### **3.3.1 Overview**

This training package integrates gaming training products, materials, and information necessary to support unit training in a virtual environment. It supplies the details for installing, configuring, executing, and maintaining the VBS3 gaming environment. The primary sections are:

1. Scenario Summary
2. Administrative Execution
3. Training Aids
4. Capabilities Summary
5. Technical Documentation
6. Tactical Products
7. Test Procedures
8. Data Collection
9. Appendices (Scenarios in VBS3 format, VBS3 Manual)

The virtual scenarios in this package also support training in the WTSP collective tasks identified in section 3.1.1.

#### **3.3.2 Development Methodology**

The team developed the gaming training package for the following stakeholders (package sections targeted to specific stakeholders are shown in parentheses):

- Virtual/gaming administrator (administrative execution)
- Users – training audience and leaders (tactical products)
- Role players (scenario job aids)
- Training managers (capabilities and test procedures)

This package serves as a user's manual that explains how to install, configure, and execute the virtual scenarios in a VBS3 environment. It contains installation and setup procedures for the software and technically focused components of the virtual training. For example, the technical documentation includes a detailed description of how to set up the communications/radio channels using the CNRSim application (see Figure 6). Administrators are expected to have a basic knowledge of VBS3; however, the package provides helpful VBS3 and CNRSim references.

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| Radio Channel      | Hot Key<br>(PUSH TO TALK on channel and to listen on channel)                     | Scenario Roles                     |  |  |                                |                              |
|--------------------|---|------------------------------------|--|--|--------------------------------|------------------------------|
|                    |   | Squad Leader<br>(uses T, Y, and U) | Medic<br>(only use T and U—use Y in emergencies) | Squad Members<br>(only use T and U—use Y in emergencies) | Platoon Leader<br>(only use Y) | Role Players<br>(only use U) |
| <i>SQD Tac Net</i> |  | Right Audio                        | (tap “T” to hear)                                | (tap “T” to hear)  | Right Audio                    | Right Audio                  |
| <i>PLT Tac Net</i> |  | Left Audio                         | (tap “Y” to hear)                                | (tap “Y” to hear)  | Right and Left Audio           | Cannot hear                  |
| <i>RolePlayer</i>  |  | Right and Left Audio               | (tap “U” to hear)                                | (tap “U” to hear)  | Left Audio                     | Right and Left Audio         |

**Figure 6. Radio Channel Setup**

### 3.3.3 Lessons Learned and Recommendations

The gaming training package contains all of the materials necessary to execute a “walk-level” unit training event from a technical and tactical perspective. As with the WTSP, the study team found that the difficulty lay in developing and packaging the virtual materials in a way that makes them easy to use and provides sufficient information for stakeholders to set up and conduct the training efficiently. No regulation or specific guidance exists on how to create a virtual training package. The study team used best practices and examples from software engineering and technical documentation based on an understanding of the target audience, their level of technical and tactical knowledge, and how they will use the package. Like the WTSP, this product should incorporate a user interface that enables rapid discovery of information customized to the type of stakeholder and type of information required.

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# 4 Soldier/Team Performance Skill Proficiency and Attitudes Towards Training

This section summarizes Soldier and trainer skills and attitudes toward S/TP training.

## 4.1 How Squad Overmatch Training Relates to the Human Dimension Concept

Since 2014, the Squad Overmatch studies have trained Soldiers in core concepts such as ASA and RPE. During the same timeframe, the Army released several publications describing the HD concept in detail. This section explores the overlap between the Squad Overmatch study and the HD concept.

TP 525-3-7, *The U.S. Army Human Dimension Concept* (2014), breaks down the HD into the cognitive component, the physical component, and the social component. Additionally, it focuses on Army leader development and the importance of understanding the effects of stress and resilience on performance. With an increased emphasis on these components, the Army believes Soldiers will be better able to thrive in a complex world.

The *cognitive component* focuses on Soldier adaptability, critical thinking, decision making, learning, memory, and being technologically savvy. The ASA section of the Squad Overmatch training overlaps significantly with the cognitive component. The Squad Overmatch approach trains Soldiers to understand the sensory and contextual cues of the environment to make better tactical decisions – a complex skill that requires integration of many cognitive factors described in the HD concept.

The *social component* centers on emotional intelligence: social fitness; moral and ethical values; an understanding and respect for culture; and understanding the variables of political, military, economic, social, information, infrastructure, physical environment, and time (PMESII-PT). The ASA section within Squad Overmatch emphasizes understanding the human terrain through proxemics, kinesics, and autonomics. The team dimensional training teaches Soldiers the elements of information exchange, how to deliver communication more clearly, and the behaviors that support their team members.

The *physical component* is foundational to almost any activity or endeavor in which a Soldier engages. It includes elements such as adaptation to environmental conditions, aerobic capacity, coordination, endurance, flexibility, health promotion, hydration, nutritional fitness, physical fitness, rest and recovery, sleep, strength, and weight control. Although not explicit in the HD concept documents, combat casualty care could potentially fit within the physical component. The 2016 Squad Overmatch TC3 Experiment included a significant amount of instruction on TC3, with a primary focus on assessing, caring for, and managing casualties having piercing wounds or blunt force trauma – important skills to help Soldiers survive operations in a combat environment.

Platoon, squad, and team leaders had the opportunity to build their leadership skills in the *leader development* component of the 2016 Squad Overmatch TC3 Experiment. These skills included behavioral support in the form of recognizing and correcting errors in others. Additionally, team leaders were observed being proactive in providing guidance to their teams as scenario situations changed – and leaders were observed in both virtual and live training scenarios establishing priorities using clear and concise communication delivery.

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The Squad Overmatch training included a section that directly addresses *stress and resilience*. Soldiers were trained on managing energy and attentional resources as they engaged in their training. They conducted exercises in maintaining focus on a particular task while accepting the situation. The training centered on Soldiers dealing with critical incidents and focusing on what is important now and is within their control.

Two other important documents that describe the HD concept are the Human Dimension White Paper and the Human Dimension Strategy. These two documents are closely related, as the Human Dimension Strategy was derived from the white paper. Most importantly, these documents describe three lines of effort the Army is pursuing to realize the benefits of the HD concept: cognitive dominance, realistic training, and institutional agility. The Squad Overmatch studies support the cognitive dominance and realistic training lines of effort.

*Cognitive dominance* includes five supporting objectives: 1) intellectual optimization, 2) social intelligence, 3) holistic health and fitness, 4) decision making, and 5) human performance research and assessment. The first four directly overlap with the cognitive, social, and physical components described in the Human Dimension Concept. The Squad Overmatch study addresses those through ASA, resilience, and team development training and instruction.

*Realistic training* supports the Army's objective of preparing Soldiers to thrive in the ambiguity and chaos of the environment of 2025 and beyond. The three supporting objectives that the Squad Overmatch study addresses are 1) accelerated training, 2) team building, and 3) complex training. The integrated training approach accomplishes this by delivering instruction in representative human interactions, meaningful social-cultural situations, superior target engagements, and improved TC3. Further, the crawl phase of the ITA comprises five courses (several condensed from existing lessons plans) that use a common lexicon and are integrated to support a training progression into gaming (walk) and live (run) training environments.

## **4.2 Soldiers' Soldier/Team performance Skill Proficiency and Attitudes Toward Training**

Section 4.1 established the logical ties between the Squad Overmatch studies and the HD concept. This section focuses on what Soldiers learned during the training and their attitudes toward the integrated training approach.

The Squad Overmatch studies of 2014 and 2016 gathered Soldiers' feedback about their perceived skill proficiencies and attitudes toward the training they received. They completed questionnaires at the start of the events (before they received any classroom instruction), and then completed post-event questionnaires after being exposed to classroom instruction and scenario exercises in gaming, virtual, and live environments. At this time, the 2016 Soldiers' feedback is not available.

The Dismounted Soldier Training System (DSTS) was a capability that Soldiers experienced during the 2014 study. In FY16, the DSTS was moved from the Army's Active Component (AC) to the Reserve Component. Since DSTS is no longer being fielded to the AC, it will not be covered in this document.

### **4.2.1 Feedback from 2014 Study**

The 2014 study included feedback from 33 Soldiers from three Army squads.

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### **4.2.1.1 Opinions of Soldiers Before Training**

Before starting the training, the Soldiers reported the following regarding their S/TP skill proficiencies:

- Over 50 percent of the Soldiers surveyed had practiced and performed tasks that develop warrior, resilience, and situational awareness skills.
- Nearly 25 percent of the Soldiers surveyed considered themselves proficient in warrior skills and competent in executing tasks that require resilience and situational awareness.
- Less than 10 percent of the Soldiers surveyed considered themselves unaware or inexperienced in basic infantry training tasks.

Before training, the Soldiers expressed the following opinions about training methodologies:

- Nearly three-quarters of the Soldiers surveyed did not believe computer simulations or games provide experiences similar to being on a patrol.
- Nearly three-quarters of the Soldiers surveyed believed that they could learn to manage emotional stressors through training.
- All Soldiers (except one) believed that stress exposure during training can improve combat decision making.
- Over half of the Soldiers surveyed believed that computer simulations and games are good ways to build combat skills.
- Over half of the Soldiers surveyed believed that current computer simulations and games do not provide enough realism for training tactical skills.
- Nearly half of the Soldiers surveyed agreed that using computer simulations to learn squad tactics and battle drills is difficult, but over three-quarters agreed that tactical video games are a good way to prepare for deployment.
- Over 90 percent of Soldier responses supported training for situational awareness and there was strong agreement that ASA training improves individual performance.
- Over 90 percent of the Soldiers surveyed agreed that building a foundation of mental skills by focusing on what is important now, balancing positive and negative experiences, and visualizing an experience empowers a Soldier, sustains and restores energy, improves concentration, and builds resilience.

### **4.2.1.2 Opinions of Soldiers After Completing Training**

After experiencing the Squad Overmatch training, Soldiers expressed the following opinions about the classroom instruction.

- 40% of Soldiers surveyed were aware of and nearly 50% were trained in (CSF2) skills to regulate breathing, techniques for solving complex problems, such as expressing concerns and asking others for their perspectives.
- 6% of the Soldiers considered themselves competent in these skills and 6% evaluated themselves as untrained.
- Over 90% of the Soldiers agreed that training programs like CSF2 teach Soldiers the need for self-monitoring and self-regulation, building self-confidence, improving awareness,

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using imagery to visualize and prepare for situations, and important for uniting a team effort.

- Nearly 70% of Soldiers considered themselves trained or proficient in situational awareness and behavioral profiling skills.
- An overwhelming majority of Soldiers (95+) considered situational awareness skills useful for observing and understanding situations and defining a baseline or pattern of life.
- The same majority agreed that ASA skills would be useful on combat patrols for help in making predictions about how they would respond to emotional and operational stressors.
- 100% of the Soldiers agree that programs like Stress Resilience in Virtual Environments (STRIVE) could provide them the knowledge to prepare for stressful situations.
- Over 80% of the Soldiers surveyed believe that visualizing and/or rehearsing a situation before it occurs will enable them to survive.
- Over 80% of the Soldiers stated that seeing a traumatic event during training enabled them to experience some of the emotions they would have (in similar circumstances) during combat.
- Over 85% of the Soldiers agreed that programs like Stress Resilience Training System (SRTS) would help them monitor and control their reaction to stress.
- The same majority stated that self-regulation training enables a Soldier to prepare for stressful events and that programs (like SRTS) provides them the self-regulation skills to manage their breathing during stressful situations.

After experiencing the Squad Overmatch training, Soldiers expressed the following opinions about the gaming, virtual, and live training.

Soldiers comments on the Tactical skills trained by the VBS3 simulation:

- Nearly 40% of the Soldiers stated that they did not have enough time to plan for each simulated (game) patrol.
- Over 60% of the Soldiers stated that it was difficult to exchange tactical information with each other.
- Over 80% of the gaming situations (scenarios) were as realistic as those the squad might encounter during deployment. The same Soldiers stated that they knew what actions to take when an unexpected event occurred in the scenarios.
- Over 40% of the Soldiers asserted that the gaming casualties presented in VBS3 were not realistic.
- Nearly 60% of the Soldiers stated that the VBS3 game-represented humans were not as effective as live role players for collecting information.

Soldiers' comments on the ASA and CSF2 skills trained by the VBS3 simulation:

- Almost half of the Soldiers stated that the VBS3-implementation of the scenarios was not effective for them to train identifying patterns of human behavior.
- Over 80% of the responses indicated that the VBS3-implementation of the scenarios was effective for training ASA skills (such as prediction enemy actions and sensing SA cues), and CSF2 skills (such as effectively managing their reactions to emotional stressors).

Soldiers' comments on the VBS3 high fidelity game implementation:

- Over 90% of the Soldiers stated that the high fidelity game-implementation of the scenarios was effective for them to train identifying patterns of human behavior.

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- Over 90% of the responses indicated that the high fidelity game-implementation of the scenarios was effective for training ASA skills (such as prediction enemy actions and sensing SA cues), and CSF2 skills (such as effectively managing their reactions to emotional stressors).

Soldiers' comments on the overall experience of the VBS3 simulation:

- Over 60% of the Soldier responses indicated that VBS3 representations of body movements were unrealistic.
- 100% of the Soldiers thought that the animated Prologue adequately provided the necessary background about the situation in the scenarios.
- Nearly 90% of the Soldiers stated that they do not use VBS3 for training squad tasks.
- Nearly ¾ of the Soldiers indicated difficulty communicating (in VBS3) with each other and their Platoon Leader.
- 100% of the Soldiers stated that they quickly learned how to navigate in VBS3; however, over half asserted that they were not able to move as in normal operations.
- Nearly 90% of the Soldier responses indicated that they were able to apply their situational awareness skills in the VBS3 scenarios. Soldiers noted that some SA cues were sufficiently modeled to be trained on (Atmospherics) and other cues were not (Kinesics/Body Language).
- About ½ of the Soldiers asserted that they did not feel stress during the VBS3 scenarios and thus did not have an opportunity to practice some of their CSF2 skills (such as cue words). However, approximately ¾ of the Soldiers stated that they used other performance and resilience techniques, such as imagery and focusing techniques.

Soldiers' comments on the ASA and CSF2 skills trained by the VBS3 simulation:

- In general, near 90% of the responses indicated that the VBS3-implementation of the scenarios was effective for training ASA skills (such as prediction enemy actions and sensing SA cues), and CSF2 skills (such as effectively managing their reactions to emotional stressors).

### **4.2.1.3 Opinions of Soldiers After Live Scenario**

Soldiers were also presented with a live scenario to supplement the simulation training.

Soldiers' opinions of the live scenario Tactical training were:

- 100% of the Soldiers agreed that they were engaged in the scenario.
- 87% of the Soldiers surveyed stated that the situations were realistic and representative of what they might encounter during combat.
- A moderate to high percentage of Soldiers surveyed indicated that the Pop-Up Targets supported training of TTPs, warrior skills, battle drills, situational awareness, and resilience.
- A high percentage of Soldiers surveyed indicated that the Interactive Avatar – Father Romanov supported training of tactics, techniques, and behaviors (TTPs); warrior skills; battle drills; situational awareness; and resilience.
- A very high percentage of Soldiers surveyed indicated that the Interactive Avatar – Businessman/High Value Individual (HVI) supported training of TTPs, warrior skills, battle drills, situational awareness, and resilience. Many squad Leaders stated that they

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were not expecting to interact with an avatar in a tactical questioning capacity and were impressed that the actor was well versed in the scenario and played the part realistically.

- A moderately high percentage of Soldiers surveyed indicated that the Interactive Targets - Shooters supported training of TTPs, warrior skills, battle drills, situational awareness, and resilience.
- A moderate to high percentage of Soldiers surveyed indicated that the Interactive Avatar (Hostage Taker) supported training of TTPs, warrior skills, battle drills, situational awareness, and resilience.
- A very high percentage of Soldiers surveyed indicated that the Interactive Avatar - Olga supported training of TTPs, warrior skills, battle drills, situational awareness, and resilience. As with the Interactive Avatar – Businessman/HVI, many squad Leaders (who generally led the tactical questioning) stated that they were impressed with the realism of the situation (e.g., avatars who exhibited nervousness in speech and gestures and became distraught when the scenario became ‘kinetic’). In one situation a squad Leader followed up on a question he had originally asked of the Businessman – the actor (representing both the Businessman and Olga), later playing Olga, was able to reply accurately and without hesitation.
- A very high percentage of Soldiers surveyed indicated that the Live Role Player supported training of TTPs, warrior skills, battle drills, situational awareness, and resilience. During the AARs, several Soldiers stated that having to interact with a wounded civilian was particularly stressful and they became too focused on rendering aid (and not on providing security and other combat tasks).
- A very high percentage of Soldiers surveyed indicated that the Special Effects – Moulage (worn by the Live Actor) supported training of TTPs, warrior skills, battle drills, situational awareness, and resilience. Many Soldiers were stressed to such an extent (at the sight of blood and bodily fluids) that they lost focus on the mission.
- A very high percentage of Soldiers surveyed indicated that the Explosive Effects supported training of TTPs, warrior skills, battle drills, situational awareness, and resilience. During the AARs, many Soldiers stated they when they experienced the IEDs, it significantly raised their stress levels.
- A moderately high percentage of Soldiers surveyed indicated that Scent Generators support training of TTPs, warrior skills, battle drills, situational awareness, and resilience. Based on discussions with Soldiers, Scent Generators were sometimes not observed even when they were in proximity to the scent generation devices. This could be attributed to some Soldiers ‘being in the moment’ and not fully aware of their surroundings. There were some Soldiers, who in the enhanced AAR, commented on the realism of the environment due to the presence of scents (e.g., incense in the Church).

### **4.2.2 Technology Used in Squad Overmatch Events**

The 2016 Squad Overmatch study built upon the 2014 study by including the ASA training, a focus on RPE, and the integrated AAR. The 2016 study differed from that of 2014 by offering instruction on TC3 and team development and applying a more rigorous instructional strategy and employment of human performance metrics.

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below details the technologies used in training from 2014 to 2016, and the years in which different technologies were included.

**Table 1. Technologies Used in Squad Overmatch Events**

| Technology   | 2014 | 2015 | 2016 |
|--|------|------|------|
| Real Time Immersive (now Mass Virtual) - Virtual Attain  | ☒    | ☐    | ☐    |
| Perceptronics Solutions –SRTS  | ☒    | ☐    | ☐    |
| Army Program of Record (PoR) DSTS  | ☒    | ☐    | ☐    |
| MIL-SIM-FX – IED, Extreme Trauma   | ☒    | ☒    | ☐    |
| Stress Vest - MILES Haptic cues  | ☒    | ☒    | ☐    |
| Virtual Avatars (AI [Laser Shot], puppeteered [Organic Motion], and video based [Cubic])   | ☒    | ☒    | ☒    |
| ScentAir (scents)  | ☒    | ☒    | ☒    |
| USC Institute for Creative Technologies (ICT) (STRIVE)   | ☒    | ☒    | ☒    |
| Army Games for Training (GfT) Virtual Battlespace 3 (VBS3) – Bohemia Interactive   | ☒    | ☒    | ☒    |
| USC ICT Captivating Virtual Instruction for Training (CVIT) – ASA modules  | ☐    | ☒    | ☒    |
| KForceGov (KGS) Trauma Fx Mannequins   | ☐    | ☒    | ☒    |
| Blood mix and moulage provided by the Army's Medical Simulation Training Centers (MSTC)  | ☐    | ☒    | ☒    |
| Army Program of Record PopUp Targets (Stationary Infantry Target [SIT])  | ☐    | ☒    | ☒    |
| MILES Casualty Display Device (MCDD) and Instrumented Combat Application Tourniquet (CAT), Nasopharyngeal Airway (NPA), Chest Decompression Needle (CDN) | ☐    | ☒    | ☒    |
| Improved First Aid Kit II (IFAK II)  | ☐    | ☒    | ☒    |
| ExploTrain (battlefield effects [suicide bomb, table bomb, weapons cache booby trap, sniper rifle effects] and casualty exit wound effects)              | ☐    | ☐    | ☒    |

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The Soldiers in the 2016 study consisted of 96 trainees from eight Army squads. As of this report, the final data from Soldier interviews and After Action Reports are not available.

### 4.3 Trainer Attitudes Toward S/TP Training

The team interviewed ten Army trainers to better understand their attitudes about S/TP training and to uncover their positive and negative opinions, the challenges they face as trainers, and any successes they could share in order to determine the feasibility of expanding Squad Overmatch training. Appendix B contains the complete set of questions covered in the interviews.

Trainers represented the following courses:

Advanced Situational Awareness: 2

Tactical Casualty Combat Care: 1

Resilience and Performance Enhancement: 2

Others: 4

Across the trainers, the average age was 45, and respondents ranged from E-5 to E-9 former enlisted personnel, a retired Major, and one civilian without military experience. Their military occupational specialties included 11B (three respondents), 11C, 19D, 68W, 58W, 75Z. Their current duty positions are Training Specialist (3 respondents), Training Developer, Emergency Care, Platoon Sergeant, Program Manager, ASA SME, and Research Psychologist. Seventy percent of respondents had either taught or participated in a Squad Overmatch training event. Eighty percent of respondents had deployed at some point in their career.

The trainers received a wide variety of training at some point in their careers. The most common courses mentioned by respondents were the NCO training courses, the Army Basic Instructors Course. First aid and combat life saver training, as well as combatives or martial arts training were also common, although given the ubiquity of this training across the military this is not necessarily notable. The least commonly mentioned courses among respondents were Combat Hunter (one respondent), team building (three respondents) and Advanced Situational awareness (three respondents). It is not surprising that Combat Hunter was among the least mentioned courses as it was a US Marine Corps program, but some concepts and lexicon from Combat Hunter evolved into the Army's ASA programs.

The questionnaire asked the trainers to describe what “human dimension” meant to them. This question was meant to uncover whether a common concept of the term existed among trainers given the large number of Army sources that discuss it. Common answers included discussing the effect of the HD on performance, its integration with the physical elements of training, and discussions of mental and psychological elements. Some of the most common terms used to describe the HD were “thinking”, “cognitive”, and “physical”, with many responses combining these concepts together. Often, respondents would contrast the HD with technological or mechanical elements of being a Soldier, such as a Soldier’s weapon or vehicle.

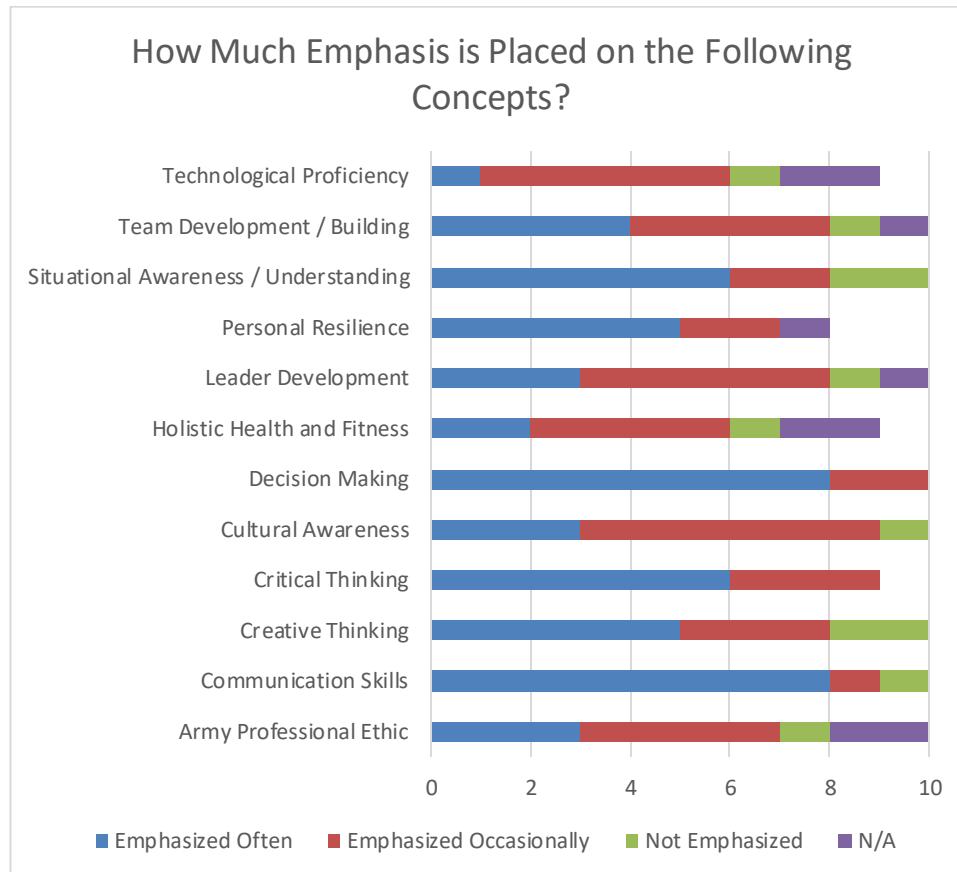
*“Rather than someone who can just shoot and move, we are looking at a Soldier who has emotional, physical, and cognitive performance standards as opposed to just tactical ones.” – Squad Overmatch Instructor*

*“When we consider what we do, we have our weaponry and equipment, and then we have our people. The people include, who we are, how we think, what our needs are, and what are the ways we interact with our equipment and each other.” – Squad Overmatch Observer*

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The questionnaire asked the trainers how much emphasis they placed on S/TP concepts in the training they provided (Figure 7). The most frequently emphasized S/TP concepts among respondents were Communication Skills and Decision Making, which were emphasized “often” across the most respondents. Also frequently mentioned by respondents were Critical Thinking, Leader Development, and Team Development, which were emphasized in courses either “often” or “occasionally”. Technological Proficiency, Holistic Health and Fitness, and the Army Professional Ethic were the least emphasized across respondents, with three or four respondents stating that these concepts were either “not emphasized” or “not applicable” to their courses.



**Figure 7. Emphasis of S/TP Concepts in Courses Taught**

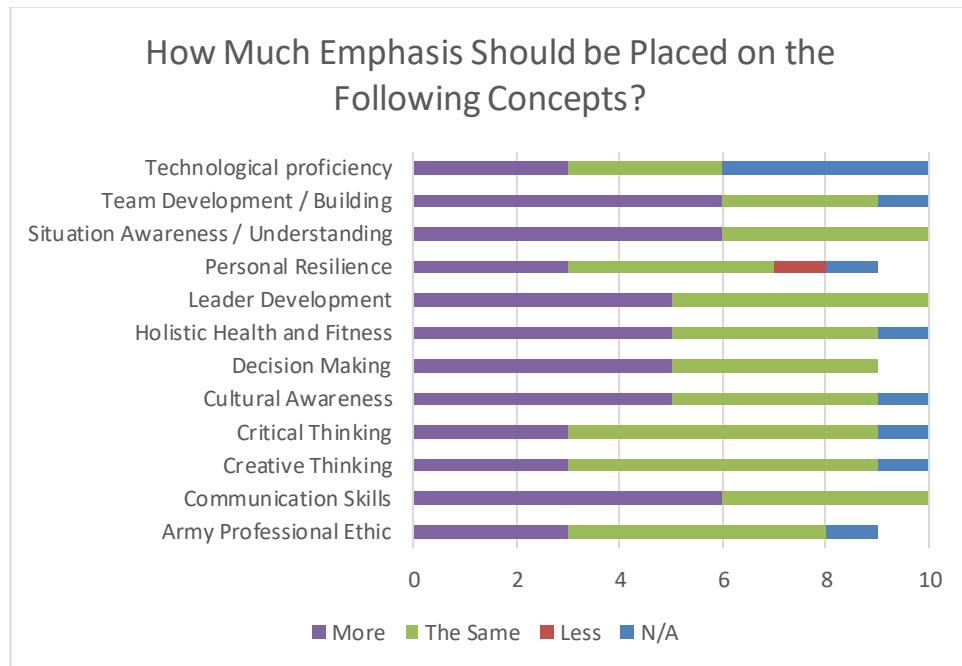
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The questionnaire asked the trainers how much emphasis should be placed on S/TP concepts in the training they provide in the future (Figure 8). More than half (6 out of 10) of respondents expressed that Communication Skills, Situational Awareness/Understanding, and Team Development/Building should be emphasized more. The Army Professional Ethic, Critical Thinking, Creative Thinking, and Personal Resilience were felt to be emphasized enough: only three respondents felt any of these concepts should be emphasized more, and at least four respondents felt that the concepts should be emphasized the same. One respondent stated that Personal Resilience should be emphasized less. Technological Proficiency was believed to be Not Applicable to four out of ten of the courses discussed, and three respondents felt that the concept should be emphasized the Same.

*"Communication skills, cultural awareness, and decision making – can't get enough of these skills. . . situational awareness is critical, they must be aware of their environment." – Squad Overmatch Instructor*

*"I know we talk about your taking care of your buddy and your buddy takes care of you but I think we could probably emphasize those holistic aspects more. We could define and emphasize the social aspect a little bit more." – Squad Overmatch Instructor*



**Figure 8. Preferred Emphasis of S/TP Concepts in Courses Taught**

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Trainers indicated that the training they provided was generally effective at teaching S/TP concepts (Figure 9), although the effectiveness of training most of the concepts could be improved. Six out ten respondents expressed that Communication Skills were taught very effectively in their courses. Respondents stated that Situational Awareness, Leader Development, Holistic Health and Fitness, Decision Making, and Cultural Awareness were the concepts that needed the most improvement in their courses. Respondents stated that Holistic Health and Fitness, the Army Professional Ethic, and Technological Proficiency were least applicable to their courses.

*"Leader development applies to all different dynamics of a Soldier. Situational awareness is critical, they must be aware of their environment." – Squad Overmatch Instructor*

*"Holistic health and fitness is a part of Resilience and I don't know if we completely tie it in. We talk about the cognitive, the mental, and the psychological fitness into the human dimension but I don't think we tie in the nutrition, activity, and sleep." – Squad Overmatch Instructor*

How Effectively Do You Think the Following Concepts Were Taught?

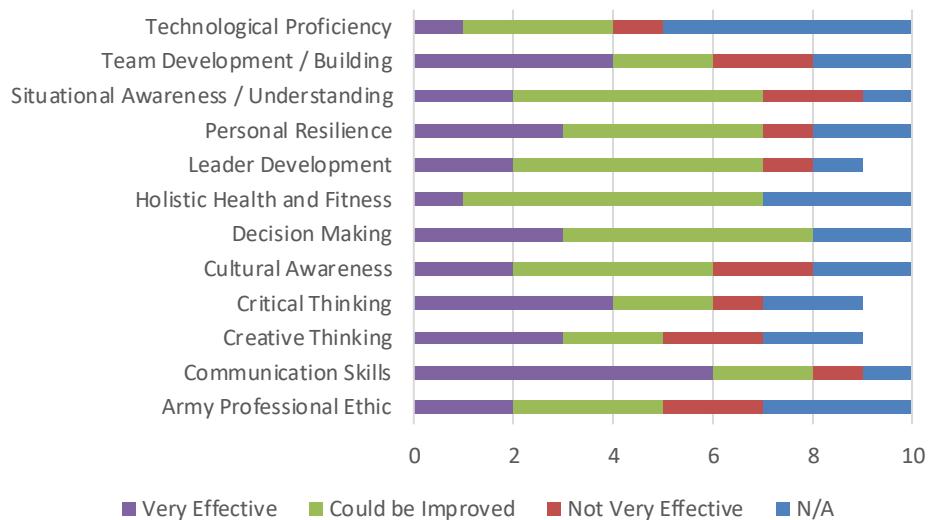


Figure 9. Effectiveness of Training S/TP Concepts

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Trainers expressed some challenges with S/TP training. Many respondents perceived that one of the primary challenges was getting lower level leadership within the Army to buy in to the S/TP training itself. They frequently saw the senior leadership (Brigade level and above) as supportive of S/TP training, and able to see the overall benefits, but at the Battalion and Company levels, and sometimes even at the Platoon level, the pressure of time and training requirements for basic Soldier skills can draw attention away from the importance of the S/TP concepts. The fact that S/TP training is a new concept in the Army is also a challenge to instructors, as it can easily be associated with the stigma against training soft skills, and without an established institutional understanding of S/TP concepts, many leaders do not know how to incorporate it into their own leadership and instructional styles. Because S/TP concepts are also more complex than most Soldier tasks, making material simple enough to be learned and outcomes simple enough to be measured, present a challenge to training S/TP concepts.

Trainers also discussed some of the challenges associated with incorporating new technology into the Army training system. The two main challenges respondents mentioned were the issue of finding time for training, as new technology requires time to train the instructors on proper use, and those trainers must then spend additional time to incorporate the new technology into their own courses of instruction. Respondents also discussed the financial cost of developing and implementing new technology, especially in areas of the Army without a traditional technological infrastructure.

*"Brigade commanders and higher are already bought-in, but the issue starts at the lowest level, Platoon Leader, Platoon Sergeant. Either it happens at the lowest level, or it is a no go." – Squad Overmatch Instructor*

*"Everybody is comfortable with the checklist; all you have do is A, B, and C and you have done it correctly as opposed to thinking critically, thinking creatively, and being outcome based." – Squad Overmatch Instructor*

*"The challenge is making material simple enough to be learned [and then] trained in a simple enough method to be retained in the Army environment." – Army Researcher*

*"It does add additional time because it contains different requirements, and the cost is run in as you make additional requirements." – Squad Overmatch Instructor*

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Trainers experienced success with S/TP training through a number of approaches. Many respondents discussed traditional approaches within the education community, such as teaching a concept from multiple perspectives and attempting to use their own experiences to relate with students. Within this approach, having combat veterans describe how S/TP training had helped them on deployments as well as back home and use their own combat and deployment experiences to highlight the importance of S/TP training, was also seen as very successful. Engaging directly with leadership was also mentioned as an effective way to improve success with S/TP training, highlighting the long- and short-term successes from previous S/TP training, as well as the cost savings and training improvements which elements such as the ITA can provide for the officers and NCOs in training their Soldiers.

The trainer interviews provided valuable insights into how S/TP training is currently conducted and gaps that should be addressed in train-the-trainer venues. Both respondents who had experience with Squad Overmatch training and those who did not, were very supportive of the ITA, and saw the need for S/TP training across the Army. Integrating training across locations as well as incorporating a variety of training concepts into one training missions (which respondents saw as one of the main advantages of the ITA), allows leaders to combine a variety of training into one mission, and thereby can save them time and money on their training calendars. Respondents also felt that the increased realism of simulations has improved the effectiveness of S/TP training. However, without a consistent approach across the entire Army, training S/TP concepts could easily collapse into a variety of rote memorization tasks rather than processing information and combining that training into a synthetic and consistent whole.

*"Learning the skills to use in progressively more realistic/stressful environments is probably very effective. Using an instructor who has combat experience gets more Soldier buy-in. Putting the content in combat-related context is very effective." – Army Researcher*

*"If you can tell which mindset a person has, then you can approach that person from a different perspective and knock down some barriers. You have to understand where the student is coming from." – Squad Overmatch Observer*

*"I think ITA is the only way to get commanders on board because they see how the Human Dimension stuff impacts and interacts with all of the other things Soldiers are asked to do. I think it is the only way to train." – Squad Overmatch Observer*

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### **5 Evaluation Design**

This section describes a design for an event that validates an S/TP-augmented training program and S/TP-augmented POI. The design leverages the human subject research protocol governed by the DoD Institutional Review Board (IRB) Agreement for IRB Review (IAIR) and used by the Squad Overmatch TC3 study during FY16 at the Maneuver Center of Excellence (MCoE), Fort Benning, Georgia. This program evaluation tests the effectiveness of an S/TP-focused training program for improving Soldier performance.

The evaluation design describes a group that receives instruction and simulation-based team training and takes part in live team training exercises that focus on developing knowledge and skills in the curriculum areas summarized above. It further describes a control group that receives live training exercises only. The metrics include physiological measures and measures of cognition, learning, attitudes, and performance.

The evaluation design provides detailed examples of:

- Objectives
- Instrumentation and facilities required
- Materials, tests, tasks, and stimuli
- Subjects
- Procedure
- Design
- Data analysis

Because of its size this Evaluation Design is maintained as a separate document.

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# 6 Conclusion and Recommendations

In recent years the Army introduced new changes to sustainable training readiness (which has replaced ARFORGEN [Army Force Generation]), doctrine, and the CATS. This study has focused primarily on developing a WTSP and ITSP to support the Army's investment in S/TP as a foundational component of the Army's future training strategy.

Through demonstrations and experimentation at Fort Benning, this study showed the feasibility and effectiveness of an S/TP-focused WTSP, ITSP, and virtual training package that support the Army's crawl-walk-run training progression. The study accomplished this by designing an experimental plan and measures of performance, defined in the WTSP and ITSP, that the study team used for evaluating human performance. The measures were developed by a team of trainers, instructional experts, and psychologists and provide a systematic mechanism for obtaining consistent human performance data that has been analyzed and will be used to inform future training. Through these measures, the study team could demonstrate that Soldiers be effectively trained in S/TP skills (TC3, ASA, RPE, and especially team building) by using an integrated crawl-walk-run methodology that encompasses instruction, simulation-based team training, and live team training exercises.

Managing the organization and presentation of TSPs poses significant challenges during development. A TSP should be easy to understand, use, and navigate. Yet often, because of the broad spectrum (and sometimes size and complexity) of interrelated tactical and instructional artifacts that they comprise, TSPs present challenges in ensuring readability, accessibility, and comprehension.

The study recommends that the Army invest in developing a TSP framework that facilitates integration of complex documentation and multimedia that also incorporates a user-friendly interface with contextually specific search queries to improve display, organization, readability, and accessibility to information. TSP generation software, such as the TDC portal, should be used to export products that are accessible from and optimized for multiple platforms. Current automated products are formatted to be printed on paper and are difficult to navigate on electronic devices. The automated production could use the same information that is entered and validated to optimize the training products in multiple formats.

The study designed and conducted surveys to assess Soldiers' S/TP-focused skill sets and knowledge. Additionally, the study developed and conducted reaction and demographic surveys that gathered feedback on Soldiers' and trainers' attitudes toward the crawl-walk-run training progression and integration of S/TP training into existing POIs and unit training exercises. A clear idea of what the training audience already knows and that audience's predispositions toward new training enables the design and development of training and education programs that are both relevant and engaging. The study recommends continuing monitoring training programs and collecting survey data from participants in order to maintain oversight and collect ongoing metrics of performance.

During the surveys, trainers expressed that Communication Skills, Situational Awareness and Team Building training should be emphasized more in future training sessions. Trainers indicated that while instruction in Communication Skills was very effective, Situational Awareness training should be improved. Decision Making and Leader Development were also concepts that needed to

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be taught more effectively. Trainers stated that connecting with students could be a challenge, but using educational approaches of connecting with students through their own personal experiences and teaching a concept from multiple perspectives allowed them to overcome this relatively well. The study recommends integrating these concepts into existing curriculum by training trainers to recognize opportunities and methods for doing so. Easily accessible train the trainer (TTT) materials that outline basic S/TP principles to teach and best practices for including those principles in classroom discussions should be produced.

The biggest challenge mentioned by trainers was getting buy-in from leadership on the need for the training, and thereby getting leadership to add time to the training schedule for what appears to be new training. All trainers expressed strong support for the ITA, and many discussed how the ITA could be used to address the challenges of time management.

The study's S/TP-focused WTSP, ITSP, virtual training package, and experiment design have been reviewed by representatives from the MCoE (Directorate of Training and Doctrine) at Ft. Benning, the Brigade Modernization Command (BMC) at Ft. Bliss, and training leaders at Camp Buehring, Kuwait. Initial feedback confirms that these packages are effective training event materials and the study recommends continued evaluation and usage in training in order to help refine and eventually validate these products.

The feedback on the evaluation approach was based on observations of the Squad Overmatch Experiment held at Fort Benning in June 2016. Both Soldiers and leaders indicated that TSP-prescribed components of that event deliver useful training and instruction and that the experiment represents a good exemplar for how the study's training and education products assist in planning and executing individual and unit training and education.

The study team recommends further pursuing efforts to develop TTT materials. While the study has increasingly relied on active Soldiers to instruct and train squads in each of the classroom modules, the success of the ITA depends on more than expertise in individual topics. It requires teamwork and diligence on the part of the trainers to demonstrate how each skill area is related and to coach Soldiers how to use those skills through practice and application and AARs. While TSPs aggregate the tools and materials needed to train, more work is needed to devise a repeatable and scalable methodology for training trainers to use this instructional strategy and to develop their own S/TP training events in the future.

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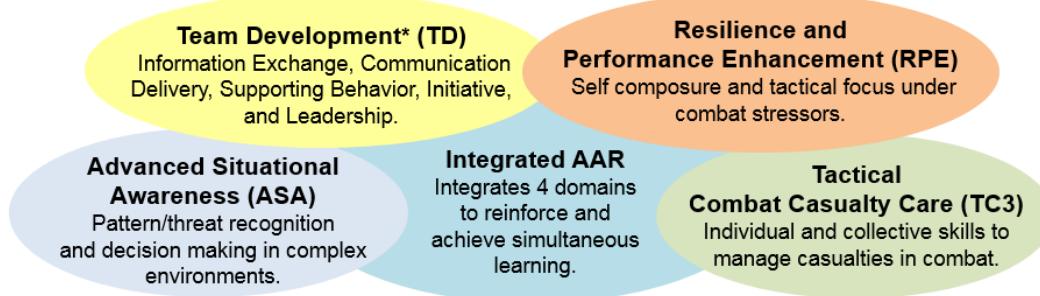
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# Appendix A      Integrated Training Approach Instructional Areas

The ITA delivers foundation training in a classroom with mixed media, covering advanced situational awareness (ASA), tactical combat casualty care (TC3), resilience and performance enhancement (RPE) techniques, teamwork skills, AAR skills, and familiarization with training technologies planned for use in gaming and live training days. Each content area leverages existing instructional programs and was compressed into an instructional package supplemented with compelling videos and hands-on exercises. Figure A-1 and the subsections below present an overview of the classroom-based modules that comprise the ITA foundation training.



**Figure A-1. Integrated Training Approach Classroom Modules**

## A.1      Advanced Situational Awareness

The ASA module provides a curriculum in pattern/threat recognition and decision making to include behavioral profiling skills (proxemics, kinesics, autonomics, geographics, atmospherics, heuristics). Soldiers learn how to become aware of their environment and its baseline and how to understand anomalies in the baseline, based on the observed context and relevance of their surroundings. They also learn rapid decision-making skills, using heuristics, for situations in which they must decide whether to kill, capture, or contact. Finally, Soldiers learn how to use the ASA lexicon to communicate actions and assessments.

## A.2      Tactical Combat Casualty Care

The TC3 module provides a curriculum that builds knowledge and skills for communication and decision making in managing combat casualties (e.g., care under fire and tactical field care). This 90-minute course is divided into three areas. First, Soldiers learn the signs, symptoms, and treatments of the top three preventable causes of death on the battlefield. They also learn the MARCH acronym for treatments and priority and how to understand tactical combat casualty card (TCCC) requirements. Second, Soldiers develop skills in recognizing symptoms and applying treatment to a trauma mannequin. In the third and final phase of this module, Soldiers learn the TC3 phases of care and appropriate casualty care by phase. They also learn how to understand the roles and responsibilities of squad leaders, medics, and first responders in casualty response, critical information elements to communicate when a casualty occurs, and squad member roles at a casualty collection point (CCP).

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### **A.3 Resilience and Performance Enhancement**

The RPE curriculum develops Soldiers' knowledge and skills in maintaining tactical effectiveness under combat stress. Soldiers learn to apply stress management skills to avoid depleting their energy and attention during critical times. They learn and practice deliberate breathing, grounding, and acceptance techniques to better manage and cope with stress. Soldiers also learn about and discuss techniques for additional stress management: What's Important Now, Grounding, Acceptance, Buddy Talk, Self Talk, and Personal After Action Review.

### **A.4 Team Development**

In the TD module Soldiers learn team development behaviors that contribute to effective tactical performance and participate in practical exercises that demonstrate how to use team behaviors in tactical situations. The TD module enhances knowledge and skills in the four dimensions of teamwork: information exchange, communication, supporting behavior, and initiative / leadership. Soldiers also learn the phases of the team development cycle and receive instruction and tools for more effective communications and a strategy for explaining and correcting errors.

### **A.5 Integrated After Action Review**

The integrated AAR curriculum builds knowledge and skills in using an integrated AAR approach through the team self-correction method in order to facilitate squad initiative and ownership in executing the AAR. In the integrated AAR module, Soldiers practice using the Squad Overmatch integrated AAR process to gain deeper insights into root causes and improve trust and cohesion. This practice helps the trainees understand the qualities of effective facilitation and recognize the characteristics of an effective integrated AAR.

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# **Appendix B      Trainer Questionnaire**

(Version 8/18/2016)

Today's Date: Click or tap here to enter text. (dd/mm/yyyy)

## **Introduction**

The Army Directorate of Training and Doctrine at the Maneuver Center of Excellence is learning more about the backgrounds and opinions of Army instructors regarding Human Dimension training. We are very interested in your candid responses to the following set of questions. Your input will help shape priorities for future training.

## **Information About You**

1. Age: Click or tap here to enter text.
2. Rank: Click or tap here to enter text.  
(example: PFC, SGT)
3. Grade: Click or tap here to enter text.  
(example: E3, E6, O2)
4. Military Occupational Specialty (MOS): Click or tap here to enter text.  
(example: 11A, 0311)
5. When did you enter the service? Click or tap here to enter text. (mm/yyyy)
6. When did you join your current unit? Click or tap here to enter text. (mm/yyyy)
7. What is your current duty position? Click or tap here to enter text.  
(Example: Rifleman, Team Leader, Instructor)
8. How long have you been in this duty position? Click or tap here to enter text. (months/years)
9. What course(s) / training have you been an instructor for? Please also indicate the approximate dates for each course / training.

Click or tap here to enter text.

10. Have you ever taught or been a participant in a Squad Overmatch training event?

Yes  No  Not sure

## **About Your Military Experience**

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11. Have you been deployed to a combat zone? If so, please indicate below.

Yes  No

If yes, what year(s)? Click or tap here to enter text.

If yes, Duty Position(s)? Click or tap here to enter text.

12. Have you received the following training? Please respond to each one.

|  | Yes | No | Not sure | If yes, what year? | If no, have you heard of this training? |
|--|-----|----|----------|--------------------|---|
|--|-----|----|----------|--------------------|---|

|   |                          |                          |                          |  |  |
|---|--------------------------|--------------------------|--------------------------|--|--|
| Army Basic Instructors Course                   | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |  |  |
| Comprehensive Soldier and Family Fitness (CSF2) | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |  |  |
| Advanced Situational Awareness                  | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |  |  |
| Combat Hunter                                   | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |  |  |
| Team Dimensional or Team Building Training      | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |  |  |
| Leader courses (e.g. Ranger, CLC, ARC, RSLC,    | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |  |  |
| Resilience and Human Performance                | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |  |  |
| Martial Arts / Combatives Training              | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |  |  |
| First Aid                                       | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |  |  |
| Self-Care                                       | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |  |  |
| Combat Life Saver                               | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |  |  |
| Medic or Corpsman                               | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |  |  |
| NCO Basic Leader Course                         | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |  |  |
| NCO Advanced Leader Course                      | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |  |  |
| NCO Senior Leader Course                        | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |  |  |
| Infantry Small Unit Leader Course               | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |  |  |

## Human Dimension Attitudes

13. What does “human dimension” mean to you?

Click or tap here to enter text.

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INSTRUCTIONS: Please answer the following questions for just one type of course / training event that you've been an instructor for within the past three years. If you've taught multiple different types of courses or training events, please select the one you think is most relevant from a Human Dimension perspective.

14. What course / training event are you answering the following questions for?

Click or tap here to enter text.

15. How much emphasis does the course / training place on the following concepts? (see glossary for definitions)

|  | Not applicable           | Applicable,<br>but not at all<br>emphasized | Emphasized<br>occasionally | Emphasized<br>often.     |
|--|--------------------------|---|----------------------------|--------------------------|
| Army Professional Ethic                | <input type="checkbox"/> | <input type="checkbox"/>                    | <input type="checkbox"/>   | <input type="checkbox"/> |
| Communication Skills                   | <input type="checkbox"/> | <input type="checkbox"/>                    | <input type="checkbox"/>   | <input type="checkbox"/> |
| Creative Thinking                      | <input type="checkbox"/> | <input type="checkbox"/>                    | <input type="checkbox"/>   | <input type="checkbox"/> |
| Critical Thinking                      | <input type="checkbox"/> | <input type="checkbox"/>                    | <input type="checkbox"/>   | <input type="checkbox"/> |
| Cultural Awareness                     | <input type="checkbox"/> | <input type="checkbox"/>                    | <input type="checkbox"/>   | <input type="checkbox"/> |
| Decision Making                        | <input type="checkbox"/> | <input type="checkbox"/>                    | <input type="checkbox"/>   | <input type="checkbox"/> |
| Holistic Health and Fitness            | <input type="checkbox"/> | <input type="checkbox"/>                    | <input type="checkbox"/>   | <input type="checkbox"/> |
| Leader Development                     | <input type="checkbox"/> | <input type="checkbox"/>                    | <input type="checkbox"/>   | <input type="checkbox"/> |
| Personal Resilience                    | <input type="checkbox"/> | <input type="checkbox"/>                    | <input type="checkbox"/>   | <input type="checkbox"/> |
| Situation Awareness /<br>Understanding | <input type="checkbox"/> | <input type="checkbox"/>                    | <input type="checkbox"/>   | <input type="checkbox"/> |
| Team Development / Building            | <input type="checkbox"/> | <input type="checkbox"/>                    | <input type="checkbox"/>   | <input type="checkbox"/> |
| Technological proficiency              | <input type="checkbox"/> | <input type="checkbox"/>                    | <input type="checkbox"/>   | <input type="checkbox"/> |

15a. Comments:

Click or tap here to enter text.

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16. How effective do you think the following concepts were taught in the course / training?

|                                     | Not applicable           | Not very effective       | Effective, but could be improved | Very effective           |
|-------------------------------------|--------------------------|--------------------------|----------------------------------|--------------------------|
| Army Professional Ethic             | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/>         | <input type="checkbox"/> |
| Communication Skills                | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/>         | <input type="checkbox"/> |
| Creative Thinking                   | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/>         | <input type="checkbox"/> |
| Critical Thinking                   | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/>         | <input type="checkbox"/> |
| Cultural Awareness                  | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/>         | <input type="checkbox"/> |
| Decision Making                     | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/>         | <input type="checkbox"/> |
| Holistic Health and Fitness         | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/>         | <input type="checkbox"/> |
| Leader Development                  | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/>         | <input type="checkbox"/> |
| Personal Resilience                 | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/>         | <input type="checkbox"/> |
| Situation Awareness / Understanding | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/>         | <input type="checkbox"/> |
| Team Development / Building         | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/>         | <input type="checkbox"/> |
| Technological proficiency           | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/>         | <input type="checkbox"/> |

16a. Comments:

Click or tap here to enter text.

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17. How much emphasis do you think the course / training SHOULD place on the following concepts?

|                                     | Not applicable           | Should be emphasized less | Should be emphasized the same | Should be emphasized more |
|-------------------------------------|--------------------------|---------------------------|-------------------------------|---------------------------|
| Army Professional Ethic             | <input type="checkbox"/> | <input type="checkbox"/>  | <input type="checkbox"/>      | <input type="checkbox"/>  |
| Communication Skills                | <input type="checkbox"/> | <input type="checkbox"/>  | <input type="checkbox"/>      | <input type="checkbox"/>  |
| Creative Thinking                   | <input type="checkbox"/> | <input type="checkbox"/>  | <input type="checkbox"/>      | <input type="checkbox"/>  |
| Critical Thinking                   | <input type="checkbox"/> | <input type="checkbox"/>  | <input type="checkbox"/>      | <input type="checkbox"/>  |
| Cultural Awareness                  | <input type="checkbox"/> | <input type="checkbox"/>  | <input type="checkbox"/>      | <input type="checkbox"/>  |
| Decision Making                     | <input type="checkbox"/> | <input type="checkbox"/>  | <input type="checkbox"/>      | <input type="checkbox"/>  |
| Holistic Health and Fitness         | <input type="checkbox"/> | <input type="checkbox"/>  | <input type="checkbox"/>      | <input type="checkbox"/>  |
| Leader Development                  | <input type="checkbox"/> | <input type="checkbox"/>  | <input type="checkbox"/>      | <input type="checkbox"/>  |
| Personal Resilience                 | <input type="checkbox"/> | <input type="checkbox"/>  | <input type="checkbox"/>      | <input type="checkbox"/>  |
| Situation Awareness / Understanding | <input type="checkbox"/> | <input type="checkbox"/>  | <input type="checkbox"/>      | <input type="checkbox"/>  |
| Team Development / Building         | <input type="checkbox"/> | <input type="checkbox"/>  | <input type="checkbox"/>      | <input type="checkbox"/>  |
| Technological proficiency           | <input type="checkbox"/> | <input type="checkbox"/>  | <input type="checkbox"/>      | <input type="checkbox"/>  |

17a. Comments:

Click or tap here to enter text.

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18. What are some of the challenges or issues you've faced in effectively training human dimension concepts?

Click or tap here to enter text.

19. What are some of the things that have helped you in effectively training human dimension concepts?

Click or tap here to enter text.

20. Is there anything about human dimension concepts that adds additional time or cost to training?

Click or tap here to enter text.

21. Are there other courses or training relevant to the human dimension that hasn't been mentioned yet? If so, what?

Click or tap here to enter text.

22. What do you think about the integrated training approach?

Click or tap here to enter text.

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23. What kinds of technologies (if any) have you used during the crawl phase of training? walk phase? run phase?

Click or tap here to enter text.

24. Can you recommend any other instructors we can talk to about the previous questions? If yes, please provide their names and contact information.

Click or tap here to enter text.

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# **Appendix C      Glossary of Terms**

### **Army Professional Ethic**

The Army Ethic is the evolving set of laws, values, and beliefs deeply embedded within the core of the Army culture. Trust, honorable service, esprit de corps, and stewardship are the essential characteristics that define the Army Profession today and will continue to be essential in fulfilling the Army's Constitutional duties to the Nation. All members of the Army Profession, bound in a moral purpose, are responsible to motivate and guide appropriate conduct. Army professionals understand and accept the Army Ethic in both their own lives and foster it in their unit or command.

(TRADOC Pam 525-3-7 (05/2014). The U.S. Army Human Dimension Concept)

### **Communication**

Communication is the process by which two or more people clearly and accurately exchange information. It is the exchange of thoughts, messages, or information through words, tone of voice, or body language. Effective communicators clarify or acknowledge the receipt of information, listen to other team members, and share their understanding of others.

(Army Team Building. ATP 6-22.6)

### **Creative Thinking**

Creativity is largely an attitude. To become more creative, Soldiers must be willing to make unusual connections that defy convention. They must be prepared to accept the risks of being different or wrong. Unusual connections may arise out of either effortful thought or from a relaxed, open state. Creative thinking involves examining problems from a fresh perspective to develop innovative solutions. Creative thinking occurs by consciously generating new ideas, and re-evaluating or combining old ideas, to solve a problem. Creativity is a willingness to accept change and apply a flexible outlook for new ideas and possibilities.

(FM 6-22 Leader Development)

### **Critical Thinking**

Is disciplined reasoning whereby individuals formulate ideas about what to believe or do. It is composed of various techniques that consider the soundness and relevance of ideas as they apply to understanding a situation or determining a way ahead. Critical thinkers make assumptions explicit and identify differences and similarities in how facts apply to a situation.

(ATP 2-33.4 Intelligence Analysis; FM 6-22 Leader Development.)

### **Cultural Awareness**

Ability to understand, communicate, and coordinate effectively across diverse groups of people in a variety of cultures. Enables Soldiers and Army Civilians to develop and sustain appropriate cultural understanding, regional expertise and language proficiency.

(TRADOC Pam 525-8-2 Army Learning Concept)

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Complements the variables of political, military, economic, social, information, infrastructure, physical environment, and time (PMESII-PT). Army professionals must understand and address the human aspects of the area of operations to increase the likelihood of mission success.

(TRADOC Pam 525-3-7 (05/2014). The U.S. Army Human Dimension Concept)

### **Decision Making**

The process of selecting a satisfactory choice from the available options. Effective decision making usually involves weighing the positives and negatives of each option, while considering all alternatives. Effective decision makers must be able to forecast the outcome of each option to determine the best one for a particular situation.

### **Holistic Health and Fitness**

Incorporates both the traditional aspects of physical fitness, along with nutritional, psychological, and sports medicine contributions for optimal physical performance.

(TRADOC Pam 525-3-7 (05/2014). The U.S. Army Human Dimension Concept)

### **Human Dimension**

The cognitive, physical, and social components of Soldiers, Army Civilians, leaders, and organizations. Developing and improving the human dimension is essential to raise, prepare, and employ the Army in unified land operations.

(The U.S. Army Human Dimension Concept. TRADOC Pam 525-3-7)

### **Integrated Training Approach**

The Integrated Training Approach implements instruction, simulation-based team training, and live team training exercises close in time that focus on developing knowledge and skills in Tactical Combat Casualty Care (TC3), Advanced Situation Awareness (ASA), Resilience/Performance, Team Development, and integrated AARs.

### **Leader Development**

Leaders establish a positive climate, create a shared vision and team identity, provide clearly stated goals, establish roles and responsibilities, establish an environment of collaboration and dialogue, establish an environment that embraces learning, and know the strengths and weaknesses of team members.

(Army Team Building ATP 6-22.6)

The Army must deliberately develop the competence, character, and commitment of all members of the Army Profession, from whom the most worthy are selected and developed as leaders. As stewards of the Army Profession, all leaders are charged with the responsibility to develop their subordinates through coaching, counseling, and mentoring. Developing leaders is critical to building cohesive, resilient, effective, ethical, and efficient organizations, whether deployed on an operation or in an institutional environment.

(TRADOC Pam 525-3-7. The U.S. Army Human Dimension Concept)

### **(Accelerated) Learning**

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Process where a person assimilates information, and temporarily or permanently acquires or improves skills, knowledge, behaviors, and attitudes. In an Army context it involves study in a military or civilian institution, in the operational Army, or through self-development.

(TRADOC Pam 525-8-2 Army Learning Concept)

### **Personal Resilience**

Ability to shut down counterproductive thinking to enable greater concentration and focus on the task at hand.

(Comprehensive Soldier and Family Fitness (CSF2): Master Resilience)

Psychological resilience refers to the process of coping with or overcoming exposure to adversity or stress. With regard to mental health interventions, psychological resilience is more than an individual personality trait—it is a process involving interaction among an individual, that individual's life experiences, and current life context.

(Promoting Psychological Resilience in the U.S. Military. RAND Report (2011))

### **Situation Awareness / Understanding**

Soldiers must be able to operate effectively under conditions of uncertainty and understand the interactions required by complex and dynamic human environments. Soldiers reduce uncertainty through understanding the situation in depth, developing the situation through action, fighting for information, and reassessing the situation to keep pace with the dynamic nature of conflict.

(TRADOC Pam 525-8-2 Army Learning Concept)

### **Team Development / Building**

A continuous process of enabling a group of people to reach their goals and improve their effectiveness through leadership and various exercises, activities and techniques.

(FM 6-22 Leader Development)

### **Technological proficiency (savvy)**

The knowledge and skills required to utilize technology to facilitate problem solving, collaboration, information sharing, and to provide learning opportunities.

(TRADOC Pam 525-8-2 Army Learning Concept)

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### **Appendix D      Acronyms**

|       |   |
|-------|---|
| AAR   | After Action Review   |
| AC    | Active Component  |
| ADDIE | Analysis, Design, Development, Implementation, and Evaluation (         |
| ARL   | Army Research Laboratory  |
| ASA   | Advanced Situational Awareness  |
| AWfC  | Army Warfighting Challenges   |
| CACTF | Combined Arms Collective Training                                       |
| CAT   | Combat Application Tourniquet   |
| CCP   | Casualty Collection Point   |
| CDN   | Chest Decompression Needle  |
| CSF2  | Comprehensive Soldier and Family Fitness                                |
| CVIT  | Captivating Virtual Instruction for Training                            |
| DATE  | Decisive Action Training Environment                                    |
| DoTD  | Directorate of Training and Doctrine                                    |
| DSTS  | Dismounted Soldier Training System                                      |
| FM    | Field Manual  |
| FY    | Fiscal Year   |
| GFT   | Games for Training  |
| HD    | Human Dimension   |
| HPE   | Human Performance Enhancement   |
| IBOLC | Infantry Basic Officer Leaders Course                                   |
| ICT   | Institute for Creative Technologies (University of Southern California) |
| IED   | Improvised Explosive Device   |
| IFAK  | Improved First Aid Kit  |
| ITA   | Integrated Training Approach  |
| ITSP  | Individual Training Support Package                                     |
| LVC-G | Live Virtual Constructive - Gaming                                      |
| MCoE  | Maneuver Center of Excellence   |
| MILES | Multiple Integrated Laser Engagement System                             |
| MOS   | Military Occupational Specialty   |
| MRT   | Master Resilience Trainer   |

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|          |  |
|----------|--|
| MOUT     | Military Operations on Urban Terrain                                   |
| NAWCTSD  | Naval Air Warfare Center Training Systems Division                     |
| NCO      | Non-Commissioned Officer   |
| NPA      | Nasopharyngeal Airway  |
| OSUT     | One Station Unit Training  |
| PEO STRI | Program Executive Office for Simulation, Training, and Instrumentation |
| POI      | Program of Instruction   |
| POR      | Program of Record  |
| PTS      | Post-traumatic Stress  |
| RPE      | Resilience and Performance Enhancement                                 |
| SET      | Stress Exposure Training   |
| SIT      | Stationary Infantry Target   |
| SLC      | Senior Leader's Course   |
| SME      | Subject Matter Expert  |
| TADSS    | Training Aids, Devices, Simulators, and Simulations                    |
| TC3      | Tactical Combat Casualty Care  |
| TD       | Team Development   |
| TDC      | Training Development Capability  |
| TP       | TRADOC Pamphlet  |
| TRADOC   | Training and Doctrine Command  |
| TSP      | Training Support Package   |
| TTT      | Train the Trainer  |
| VBS3     | Virtual Battlespace 3  |
| WRAIR    | Walter Reed Army Institute of Research                                 |
| WTSP     | Warfighter Training Support Package                                    |

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